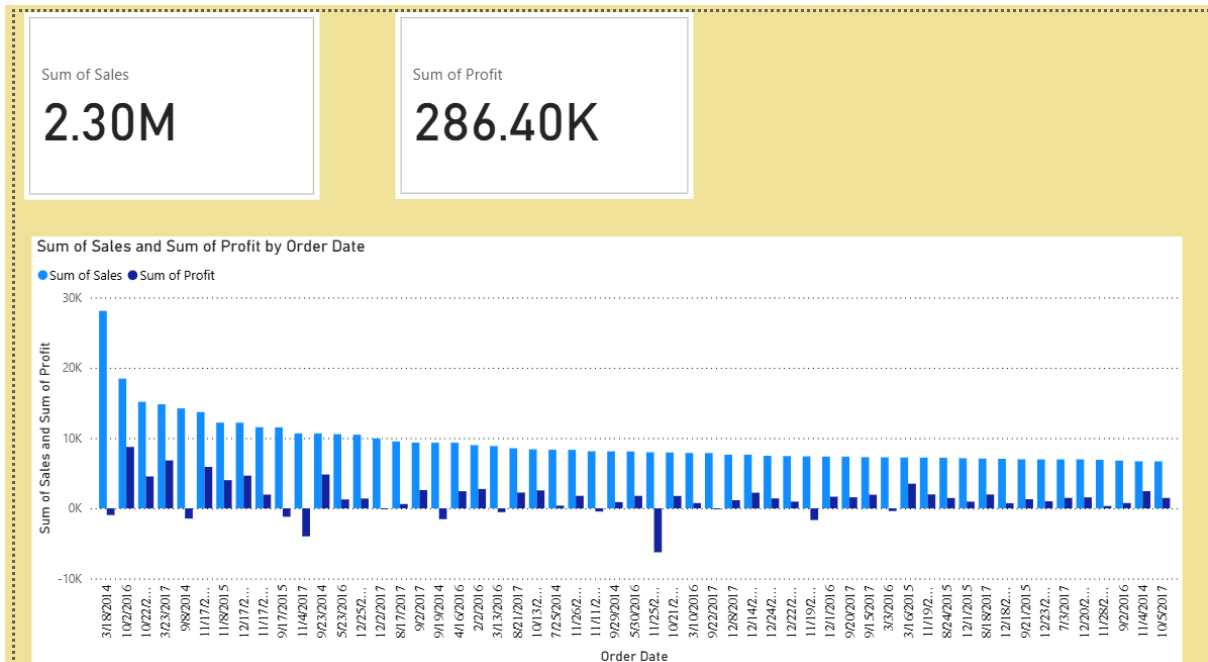# DATA VISUALIZATION

i. Sales & Profit Overview

1. Key Performance Indicators

- **Total Sales**: **$2.30 Million**

- **Total Profit**: **$286.40 Thousand**

2. Trend Analysis: Sales & Profit by Order Date

The **clustered bar chart** below the KPIs shows the **Sum of Sales and Sum of Profit** plotted across different **order dates**:

- The **light blue bars** represent sales volume.

- The **dark blue bars** reflect profit margins.

- Notable **spikes** in sales and profit are visible during some quarters, indicating promotional or high-demand periods.

- **Profit dips** (below the x-axis) suggest loss-making sales, possibly due to discounts, returns, or operational inefficiencies.

3. Observations

- Sales are relatively consistent over time with periodic peaks.

- Profit is positive in most months but dips below zero in a few, requiring further analysis.

- Some months with high sales do not necessarily show high profit, indicating potential **cost control** or **discounting issues**.

ii. Profitability Analysis by Discount and Sub-Category

Sum of Profit by Sub-Category
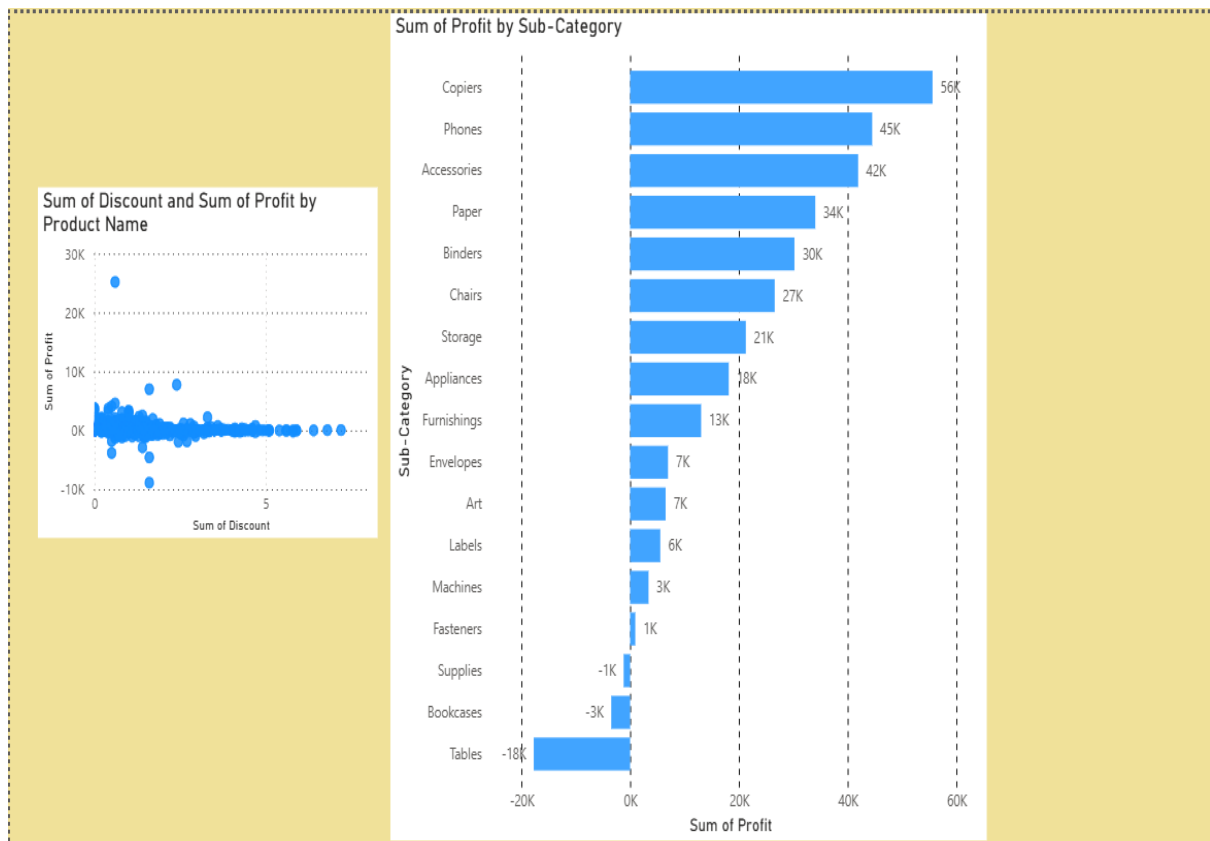
1. Discount vs. Profit Scatter Analysis

Chart Title: *Sum of Discount and Sum of Profit by Product Name*

- This scatter plot visualizes the relationship between **discounts offered** and the resulting **profit per product**.

- **Key Insight**:

    o Most products cluster around **low discounts and modest profits**.

    o A few products with **very high discounts** lead to **negative profits**, indicating **over-discounting**.

    o Products with **high profits and minimal discounts** (top-left quadrant) may represent **best-performing items**.

2. Profit Distribution by Sub-Category

Chart Title: *Sum of Profit by Sub-Category*

- **Top 5 Most Profitable Sub-Categories**:

    o 🖨 **Copiers**: $56K

    o 📱 **Phones**: $45K

    o 🖐 **Accessories**: $42K

    o 📄 **Paper**: $34K

- o 🗄 **Binders**: $30K
- **Sub-Categories with Negative Profit**:
  - o **Tables**: -$18K
  - o **Bookcases**: -$3K
  - o **Supplies**: -$1K
- **Key Insight**:
  - o Tables and bookcases are **loss-making**, possibly due to high cost, discounts, or low sales volumes.
  - o Copiers and phones significantly drive overall profitability.

3. **Power BI Dashboard Summary Report**

Tools & Visuals Used in Power BI

- **Cards / KPI Tiles**:
  - o *Total Sales*: $2.30M
  - o *Total Profit*: $286.40K
- **Clustered Column Chart**:
  - o *Sum of Sales and Sum of Profit by Order Date*
  - o Visual comparison of daily/monthly performance, highlighting high and low-profit periods.
- **Scatter Plot**:
  - o *Sum of Discount vs. Sum of Profit by Product Name*
  - o Shows the correlation between discounts and profit; highlights products where discounts result in negative profit.
- **Horizontal Bar Chart**:
  - o *Sum of Profit by Sub-Category*
  - o Ranks sub-categories by profitability, indicating best and worst performers.

➢ **Key Insights**

Overall Performance

- **Sales**: $2.30 million
- **Profit**: $286.40K
  - o This indicates a **profit margin of ~12.45%**, suggesting moderate profitability.

Sales & Profit Trends

- Some order dates show **negative profits**, suggesting unprofitable deals or over-discounting.

- Top-performing periods had **sales exceeding $25K/day**, while low-performing days were below $5K.

Discount Impact

- Discounts over **3%–5%** show a trend toward **reduced or negative profit**.

- Some high-discounted items consistently yield **negative returns**, indicating a need for **discount strategy optimization**.

Sub-Category Profitability

- **Top 5 Profitable Sub-Categories**:

    o Copiers ($56K), Phones ($45K), Accessories ($42K), Paper ($34K), Binders ($30K)

- **Loss-Making Sub-Categories**:

    o Tables (-$18K), Bookcases (-$3K), Supplies (-$1K)